

400 Chestnut Street Tower II

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January 7, 1981

Mr. James P. O'Reilly, Director  
Office of Inspection and Enforcement  
U.S. Nuclear Regulatory Commission  
Region II - Suite 3100  
101 Marietta Street  
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - NRC-OIE LETTER RII:JAM  
50-390/80-23, 50-391/80-17 - REVISED RESPONSES

The subject letter dated October 1, 1980, cited TVA with seven items of noncompliance. Responses to these items were provided in my letter to you dated November 24, 1980, including a commitment to provide further information on infraction 50-390/80-23-06, 50-391/80-17-04, by December 16, 1980. As promised by my letter of December 12, 1980, enclosed is that response. Also enclosed is a revised response to infraction 50-390/80-23-01, 50-391/80-17-01.

If you have any questions, please get in touch with D. L. Lambert at FTS 857-2581.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

*L. M. Mills*  
L. M. Mills, Manager  
Nuclear Regulation and Safety

Enclosures

cc: Mr. Victor Stello, Director (Enclosures)  
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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2  
REVISED RESPONSE TO INFRACTION 50-390/80-23-01 AND 50-391/80-17-01

INFRACTION 80-23-01/80-17-01

As required by 10 CFR 50, Appendix B, Criterion V, activities affecting quality must be accomplished in accordance with instructions. The accepted QA program, FSAR Section 17.1A.5, states that assurance is provided that activities are accomplished in accordance with instructions. Section 6.2 of Appendix E to WBNP-QCP-4.10 designates the cleanliness classification of systems containing fluids which have direct contact with the nuclear reactor core as Class B. Section 6.7 of the appendix requires either the sealing of openings or the complete enclosure of materials to preserve required surface cleanliness.

1. Section 6.3.6.3.5 of Appendix E to WBNP-QCP-4.10 stated that if it becomes necessary to leave an opening temporarily unattended, the protective cover or seal shall be reinstalled.

Contrary to the above, as of July 25, 1980, activities affecting quality were not accomplished in accordance with WBNP-QCP-4.10 in that over 35 examples of pipes, flanges, and fittings of systems, including the Reactor Coolant System and Chemical and Volume Control System were found in the unit 1 containment to be unprotected and unattended.

2. Section 5.2.2 of WBNP-QCP-1.6 required that the responsible engineer assign proper storage to permanent materials.

Contrary to the above, as of July 31, 1980, activities affecting quality were not accomplished in accordance with WBNP-QCP-1.6 in that adequate storage requirements were not assigned for over 1,000 stainless steel quality valves, flanges, tees, caps, couplings, and reducers in warehouses 9 and 21 which were available for use in cleanliness Class B systems and were stored with internal surfaces unprotected from contamination.

3. Section 6.3.4 of Appendix E to WBNP-QCP-4.10 required periodic inspection of seal integrity for cleanliness Class B materials and the repair or replacement of seals where required.

Contrary to the above, as of July 31, 1980, activities affecting quality were not accomplished in accordance with WBNP-QCP-4.10 in that seals had not been repaired or replaced for over 1,000 pieces of quality stainless steel tubing and pipe available for use in cleanliness Class E systems which were stored in yard sheds 11 and 12 with deteriorated seals which had allowed internal contamination.

## Corrective Action Taken or to be Taken and Results Achieved

1. Responsible engineering and craft employees have inspected the cited and other systems for openings. Shortly after inspection, all openings were covered. All safety-related piping systems will be flushed to the Division of Engineering Design (EN DES) specified cleanliness levels before tentative transfer of the systems to the Division of Nuclear Power (NUC PR).
2. The storage conditions of stainless steel pipe fittings and valves stored in warehouses 9 and 21 have been inspected by engineering and warehouse employees. We have also had swipe tests run on a sample of fittings stored in these warehouses to determine if the dust and dirt present were harmful to stainless steel. The results of these tests showed chloride and fluoride levels below that considered acceptable (less than  $0.08 \text{ mg/dm}^2$ ). We have also reviewed EN DES requirements for storage of stainless steel and have found no requirement for end caps on fittings. We have capped the ends of all stainless steel valves, even though we have found no requirement that they be capped. In addition, any valves and fittings utilized in Class B cleanliness safety-related systems will have internal cleanliness inspection at the time of installation and will be flushed to meet EN DES requirements before tentative transfer to NUC PR.
3. The stainless steel tubing stored in yard sheds 11 and 12 has been reinspected by engineering and warehouse employees, and end caps have been replaced with plugs. We have also visually inspected the internal surfaces of a random sample of tubes stored in these sheds and had swipe tests run on the internal surfaces of some of these samples of tubes. Visual inspection revealed only dust on the internal surfaces, and the swipe tests showed chloride and fluoride levels below those considered acceptable. Therefore, we conclude that additional cleaning of this tubing is not necessary at this time. Any tubing utilized in Class B cleanliness safety-related systems will have internal cleanliness inspection at the time of installation and will be flushed to meet EN DES requirements before tentative transfer to NUC PR.

## Action to Prevent Recurrence

1. The procedural requirements to keep openings in pipe and equipment covered when not attended has been emphasized onsite by the following:
  - (a) Engineering and craft employees will again be instructed to follow procedures with emphasis on pipe openings. Previous instructions on this matter were given as lectures to large groups. In order to increase the effectiveness of the reinstruction, the instructions will be conducted by first- and second-line supervisors dealing directly with employees under their supervision.

- (b) Crafts have increased the frequency of walkthrough inspections, specifically looking for this problem. Results of these walkthroughs are reported to the Construction Superintendent's office.
  - (c) A housekeeping procedure has been implemented onsite which requires an engineering supervisor to make a monthly surveillance of all plant areas.
  - (d) Plant area teams of management employees have been assigned. These teams are responsible for all work within each given plant area and will make inspections on a frequent basis.
  - (e) A review of WBNP-QCP-4.10, Appendix E, is in progress to ensure that it implements the current EN DES requirements.
- 2, 3. We are undertaking a review of our receipt inspection and storage procedures to ensure that adequate storage instructions are given to warehouse employees upon receipt of materials and that current EN DES requirements for storage of valves, pipe fittings, and tubing are covered in our procedures. Any discrepancies will be resolved by revising our site procedures. We have also begun to replace the caps on stainless steel tubing stored in other yard sheds with plugs which should not be as susceptible to cracking caused by sunlight. The necessity of checking these items and taking any corrective action required during inspections performed by warehouse employees have been emphasized to warehouse supervision.

Date of Full Compliance

- 1. We are now in full compliance for the specific items cited. Flushing activities will be completed as required before the systems are transferred to NUC PR. Instructions to craft and engineering employees and procedure reviews should be complete by January 1, 1981.
- 2, 3. We now have all openings covered on tubular products. Replacement of caps with plugs, where practical, will be complete by January 15, 1981. Flushing of piping systems will be complete by fuel loading of the appropriate unit. Procedure reviews and any necessary revisions should be complete by January 31, 1981.

ENCLOSURE

WATTS BAR NUCLEAR PLANT  
REVISED RESPONSE TO INFRACTION  
50-390/80-23-06 AND 50-391/80-17-04

INFRACTION 80-23-06 AND 80-17-04

As required by 10 CFR 50, Appendix B, Criterion XI, testing is performed with written procedures incorporating requirements in applicable design documents.

1. The accepted QA program, FSAR Section 17.1A.11, states that the test program includes those tests necessary to verify the adequacy of field erection and installation. FSAR Section 8.1.5.3 commits to full conformance with Regulatory Guide 1.30 which endorses ANSI N45.1.4-1972. Section 2.3 of ANSI N45.2.4-1972 requires that test procedures be prepared and revised to assure tests are performed in accordance with the latest information. Section 2.2.(5) of the Standard specifies the availability of the manufacturer's instructions as prerequisite to all activities, including testing, addressed by the Standard.

Contrary to the above, as of July 31, 1980, Westinghouse Instruction Book, Motor Operated Gate Valves, was not considered when preparing General Construction Specification G-50, Torque and Limit Switch Settings for Motor-Operated Gate Valves. As a result, torque switches and geared limit switches on certain level and flow control valves were not set in accordance with the manufacturer's instructions. These valves are required to reposition in response to an engineered safety features actuation.

2. The accepted QA program, FSAR Section 17.1A.11.3, requires that final detailed procedures for preliminary tests are to be reviewed by the proper divisions of the Office of Engineering Design and Construction, POWER, and the NSSS vendor. This section further requires that the NSSS vendor evaluate preliminary test results at the time of the test.

Contrary to the above, as of July 31, 1980, preliminary test procedures and their results did not receive required reviews in that:

- (a) Of four preliminary tests inspected, none were reviewed by the NSSS vendor and the Office of Power had reviewed only the system flushing test.
- (b) The NSSS vendor had not evaluated any preliminary test results.

Corrective Action and Results Achieved

1. TVA has requested that Westinghouse review and approve Construction Specification G-50 or indicate to TVA that torque and limit switches set using G-50 must be reset in accordance with the Westinghouse instruction book. TVA will reset all torque and limit switches if advised by Westinghouse to do so.

2. In the past, it had been TVA policy that preliminary test procedures need not be reviewed by any division other than the Division of Construction (CONST). The tests results were reviewed by other TVA divisions and the NSSS vendor where appropriate. This TVA policy has been revised. The last two paragraphs of FSAR Section 17.1A.11.3 will be revised as follows to reflect this new policy.

Various electrical and mechanical construction tests are performed by CONST in accordance with written procedures as prerequisites for the preoperational testing program. CONST will develop a document entitled Construction Test Procedure Manual (CTPM) consisting of generic procedures for performing and documenting these tests. The CTPM will be reviewed and approved by CONST, EN DES, NUC PR, and CONST QA. The specific details for development, review, and approval of construction test procedures will be contained in a TVA Interdivisional Quality Assurance Program (ID-QAP\*); however, the detailed construction test procedures for each specific construction test will be developed by CONST.

\*The ID-QAP is under development at this time.

However, the Construction Test Procedure Manual (CTPM) for Watts Bar will be initiated by February 15, 1981. Before the new manual is ready, preoperational tests may be initiated provided the construction test procedures, required as prerequisites for the preoperational tests being initiated, are reviewed and approved for adequately meeting design requirements by all organizations responsible for reviewing and approving the procedures for the CTPM and with appropriate corrective action for all deficiencies.

Before the new manual is complete, construction tests which may be prerequisites for later preoperational tests (i.e., preoperational tests scheduled after the completion of a new manual) may continue provided that either (a) the construction test documents are reviewed as specified for the procedures in the CTPM, or (b) a similar procedure review is performed after the construction test is complete and before initiating that preoperational test. If changes are made to a construction test procedure after the construction test has been conducted, the test results will be reviewed or, if necessary, the test rerun.

#### Action Taken to Prevent Further Noncompliance

1. TVA will revise paragraph 2.1.2.4 of G-50 as follows:

The closing torque switch of safety-related valves shall be set at its minimum setting prior to the valve being operated electrically. Before transfer to the Division of Nuclear Power (NUC PR), the setting shall be returned to the manufacturer's recommended normal setting, if available. For those operators for which a manufacturer's recommended setting is not available, the torque switch shall be set at the minimum setting and increased as necessary to allow the valve to achieve the seat tightness necessary to perform its intended function. Those safety-related active valves that are required to close following an

accident will be leak rate tested before plant operation in order to verify that the torque switch setting is acceptable. Deviation from manufacturer's recommended setting is permitted as operating conditions dictate, except in no case shall the manufacturer's maximum setting be exceeded without the Division of Engineering Design's (EN DES) concurrence. The reason for deviation from manufacturer's recommended setting shall be documented.

In addition, G-50 will be amended to include a sample data sheet. The data will be used by CONST to document the "as-found" and "as-left" torque and limit switch settings as well as the manufacturer's recommended setting. The data sheet will be a permanent QA record and will be used to document any changes in the torque and limit switch settings. The appropriate site procedures will be revised to implement these changes in G-50. For future procurement of valves, the TVA procurement specifications will require the valve vendor to provide documented recommended settings for torque and limit switches.

Most Limitorque motor-operated valves at Watts Bar have a torque switch calibration tag attached to the upper surface of the limit switch gear box. The purpose of this tag is twofold: (1) it indicates the normal and maximum switch settings and, (2) it relates these settings to the actual stem torque of the operator in ft-lbs. For valves that have no vendor-recommended setting, TVA believes that the settings determined by G-50 are acceptable. These settings will be documented and a permanent record of any future changes to the settings will be maintained.

2. TVA will make similar changes to the appropriate paragraphs in Chapter 17 of the FSAR for each TVA nuclear plant.

#### Date When Full Compliance Will Be Achieved

1. We expect to complete the revisions to G-50 by February 2, 1981. Any required change in limit switch settings will be completed before fuel loading.
2. The changes to the Watts Bar FSAR will be made in the next FSAR amendment scheduled for February 1981.